

<i>FlyBy Math™</i> Alignment Mathematics Content Standards, Benchmarks and Performance Standards June 2002	
Strand: ALGEBRA FUNCTIONS, AND GRAPHS Standard: Students will understand algebraic concepts and applications.	
9-12 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols.	
Performance Standards: Grade 9-12 6. Represent and analyze relationships using written and verbal expressions, tables, equations, and graphs, and describe the connections among those representations: <ul style="list-style-type: none"> • given data in a table, construct a function that represents these data (linear only) • given a graph, construct a function that represents the graph (linear only) 	<i>FlyBy Math™</i> Activities --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
13. Solve: <ul style="list-style-type: none"> • formulas for specified variables 	--Use the distance-rate-time formula to predict and analyze aircraft conflicts.
9-12 Benchmark: Understand patterns, relations, functions, and graphs.	
Performance Standards: Grade 9-12 4. Translate among tabular, symbolic, and graphical representations of functions.	<i>FlyBy Math™</i> Activities --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
9-12 Benchmark: Use mathematical models to represent and understand quantitative relationships.	
Performance Standards: Grade 9-12 1. Model real-world phenomena using linear and quadratic equations and linear inequalities (e.g., apply algebraic techniques to solve rate problems, work problems, and percent mixture problems; solve problems that involve discounts, markups, commissions, and profit and compute simple and compound interest; apply quadratic equations to model throwing a baseball in the air).	<i>FlyBy Math™</i> Activities --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.
3. Express the relationship between two variables using a table with a finite set of values and graph the relationship.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

<p>4. Express the relationship between two variables using an equation and a graph:</p> <ul style="list-style-type: none"> • graph a linear equation and linear inequality in two variables • solve linear inequalities and equations in one variable • solve systems of linear equations in two variables and graph the solutions • use the graph of a system of equations in two variables to help determine the solution 	<p>--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.</p> <p>--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.</p>
<p>5. Solve applications involving systems of equations.</p>	<p>--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.</p>
<p>8. Determine the solution to a system of equations in two variables from a given graph.</p>	<p>--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.</p>
<p>9-12 Benchmark: Analyze changes in various contexts.</p>	
<p>Performance Standards: Grade 9-12</p> <p>1. Analyze the effects of parameter changes on these functions:</p> <ul style="list-style-type: none"> • linear (e.g., changes in slope or coefficients) 	<p><i>FlyBy Math™</i> Activities</p> <p>--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.</p> <p>--Interpret the slope of a line in the context of a distance-rate-time problem.</p>
<p>2. Solve routine two- and three-step problems relating to change using concepts such as:</p> <ul style="list-style-type: none"> • exponents • factoring • ratio • proportion • average • percent 	<p>--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.</p>
<p>5. Estimate the rate of change of a function or equation by finding the slope between two points on the graph.</p>	<p>--Interpret the slope of a line in the context of a distance-rate-time problem.</p>
<p>6. Evaluate the estimated rate of change in the context of the problem.</p>	<p>--Interpret the slope of a line in the context of a distance-rate-time problem.</p>